Understanding AI - Resources AI4GHI

Understanding Artificial Intelligence - Student Lecture Series

The following lectures from experts were given specifically for students of the Global South. Please refer to them to gain insights into topics and obtain guidance that can help your team to incorporate a more comprehensive perspective when analyzing and communicating your research.

Introduction to Artificial Intelligence - Dr. Emna Harigua:
https://www.youtube.com/watch?v=ApJ2OME3xGk&t=1s

Rethinking AI Governance Decolonization in sub-Saharan Africa - Dr. Gelan Ayana:
https://youtu.be/ZUDKwfWP3ys?si=mpiBAtS3Isn-i2RD

Beyond Representation: Centering Marginalized Voices in AI Design - Dr. Rose-Mary Gyening:
https://youtu.be/cfFgO9S1-fc

Introduction to Programming

Free resources from Microsoft:

AI for beginners: A 12-week, 24-lesson curriculum all about Artificial Intelligence:
https://microsoft.github.io/AI-For-Beginners/

IOT: Learn about IOT by doing a project that covers the journey of food from farm to table. This includes farming, logistics, manufacturing, retail, and consumer - all popular industry areas for IoT devices: https://microsoft.github.io/IoT-For-Beginners/#/
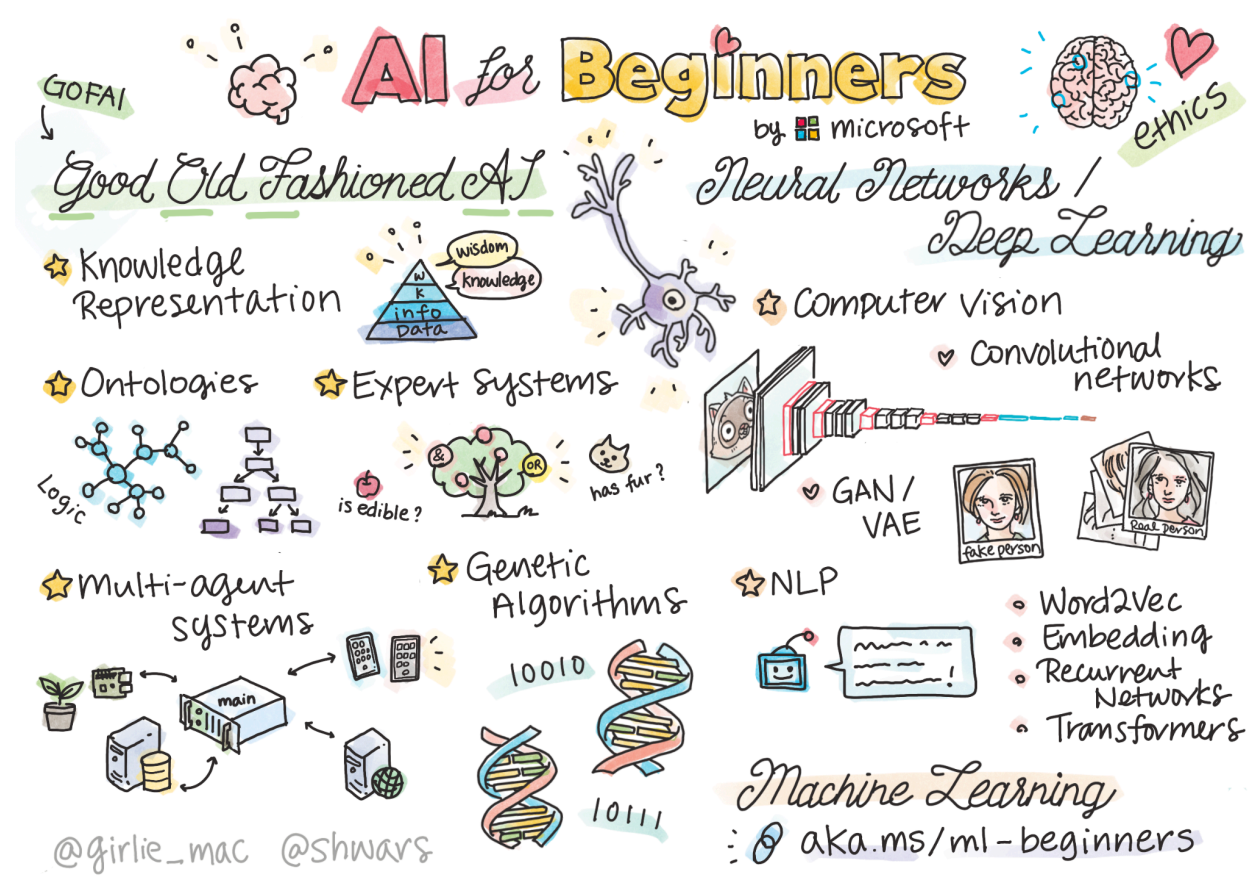
Machine Learning: A great course on classical machine learning, using Scikit-learn:
https://microsoft.github.io/ML-For-Beginners/#/

Data Science: This course covers Deep Learning & Data Science in more detail:
https://t.co/QbivVp8hIC

Source: Microsoft is offering FREE courses: AI, IoT, Machine Learning, Data Science

Courses to learn key skills

If you are a beginner, these courses are a great starting point:

Data Analysis Resources

1. *Become a Data Analyst*– *Udacity*
2. *Intro to Data Analysis*– *(Free Course) Udacity*
3. *Data Science Specialization*– *Johns Hopkins University*
4. *SQL for Data Analysis*– *(Free Course) Udacity*
5. *Data Analysis with R*– *(Free Course) Udacity*
6. *IBM Data Science Professional Certificate.*– *IBM*
7. *Data Analysis and Visualization*– *(Free Course) Udacity*
8. *Applied Data Science with Python Specialization*– *University of Michigan*
9. *Data Analyst Masters Program*– *Edureka*

Programming language Resources-

1. *Python for Everybody* — *University of Michigan*
2. *Introduction To Python Programming*– *Udemy*
3. *Python Core and Advanced*– *Udemy*
4. *Crash Course on Python*– Google
5. *Python for Absolute Beginners!*– *Udemy*
6. *Introduction to Python Programming*– *Udacity*
7. *Python 3 Programming Specialization*– *University of Michigan*
8. *R Programming* — *Johns Hopkins University*
9. *Programming for Data Science with R*– *Udacity*
10. *R Programming A-Z™*– *Udemy*

Statistics Resources-

1. *Intro to Statistics (Free Course) Udacity*
2. *Statistics with R Specialization*– *Duke University*
3. *Statistics with Python Specialization*– *University of Michigan*
4. *Intro to Inferential Statistics*– *(Free Course) Udacity*
5. *Intro to Descriptive Statistics*– *(Free Course) Udacity*
6. *Data Science: Statistics and Machine Learning Specialization*– *Johns Hopkins University*
7. *Basic Statistics*– *University of Amsterdam*
8. *Statistical Analysis with R for Public Health Specialization*–*Imperial College London*
9. *Business Statistics and Analysis Specialization*– *Rice University*
10. *Statistics for Data Science and Business Analysis*– *Udemy*
11. *Intro to Statistics*– *Udacity*

Mathematics Resources-

1. *Mathematics for Machine Learning Specialization*– *Imperial College London*
2. *Mathematics for Data Science Specialization*– *Coursera*
3. *Data Science Math Skills*– *Duke University*
4. *Intro to Statistics*– *Udacity*
5. *Probability — The Science of Uncertainty and Data*– *MITx*
6. *Basic Statistics*– *University of Amsterdam*
7. *Probabilistic Graphical Models Specialization*– *Stanford University*

8. *Introduction to Calculus*– *The University of Sydney*
9. *Probability and Statistics*– *University of London*

Data Wrangling Resources-
1. *Learn SQL*– *Udacity*
2. *Excel to MySQL: Analytic Techniques for Business Specialization*– *Duke University*
3. *Learn SQL Basics for Data Science Specialization*– *University of California, Davis*
4. *Databases and SQL for Data Science*– *IBM*
5. *Modern Big Data Analysis with SQL Specialization*– *Cloudera*
6. *Introduction to Structured Query Language (SQL)*– *University of Michigan*
7. *Data Warehousing for Business Intelligence Specialization*– *University of Colorado System*
8. *SQL Essentials Training & Certification-* *Edureka*
9. *The Complete SQL Bootcamp 2024*– *Udemy*
10. *SQL — MySQL for Data Analytics and Business Intelligence-* *Udemy*

Data visualization Resources-
1. *Data Visualization with Tableau Specialization*– *University of California, Davis*
2. *Data Visualization with Advanced Excel*– *PwC*
3. *Data Visualization in Tableau*– *Udacity*
4. *Information Visualization Specialization*– *New York University*
5. *Data Visualization with Python*– *IBM*
6. *Data Visualization and Communication with Tableau*– *Duke University*
7. *Data Visualization*– *Coursera*
8. *Tableau 2024 Certified Associate Exam Guide A-Z (w Datasets)*– *Udemy*
9. *Complete Tableau 2024 Training for Absolute Beginners*– *Udemy*

Machine Learning Resources-
1. *Become a Machine Learning Engineer (Udacity)*
2. *Machine Learning*– *Stanford University*
3. *Machine Learning with Python*– *IBM*
4. *Intro to Machine Learning with TensorFlow (Udacity)*
5. *Machine Learning A-Z™: Hands-On Python & R In Data Science* -*Udemy*
6. *Python for Data Science and Machine Learning Bootcamp*– *Udemy*
7. *Advanced Machine Learning Specialization*– *Coursera*

Source: https://aqsazafar81.medium.com/65-best-resources-to-learn-data-analysis-792c017a76e9

Effective Communication

Verbal Communication (Preparing the video)

These resources will provide a starting point for organizing and preparing your videos (3 minutes max). Carefully consider the content, who will say what, the visuals (are you creating slides? Are you going to give us a walkthrough of your product?), and the audio (is your voice clear and free of background noise?).

[3MT: three tips to help you prepare a winning presentation](#)

[Data Presentation, Step-by-Step | Google Data Analytics Certificate](#)

[Communication Do's and Don't for Data Analysts | Google Data Analytics Certificate](#)

[How to give a great oral presentation](#)

[How To Prepare an Oral Research Presentation](#)

Written Communication (Writing an abstract)

Here are some sources to inspire you as you prepare your abstract (maximum 250 words). Your abstract can be structured or unstructured. Regardless of the format, the abstract should be concise and effective in summarizing your research.

[How to write a good abstract for a scientific paper or conference presentation - PMC](#)

https://writing.wisc.edu/handbook/assignments/writing-an-abstract-for-your-research-paper/

https://support.jmir.org/hc/en-us/articles/360020341552--for-authors-Guidelines-for-writing-abstracts

AI and Applications

There are innumerable applications of AI. A simple search on Google or YouTube results in many videos explaining the applications of AI to better our society, our healthcare systems and aid in our fight against climate change. Make sure to connect the research you've conducted with the real world through exhibiting consideration for the communities and structures you aim to impact.

The AI Series: AI and the Global South | Studio B: Unscripted

How AI Can Help Us Achieve Sustainable Development | United Nations

Can AI Help Solve the Climate Crisis? | Sims Witherspoon | TED

Introduction to Climate Change and AI